

AREA COVERAGE

PERIOD OF RECORD

January 1962 - Canadian OSV "P"
January 1962 - British OSV's "A", "I", "J"
August 1959 - Norwegian OSV "M"

OBSERVATION TIME

CODE

SOURCE

- ## MISSING DATA

COLUMNS AND ELEMENTS PUNCHED

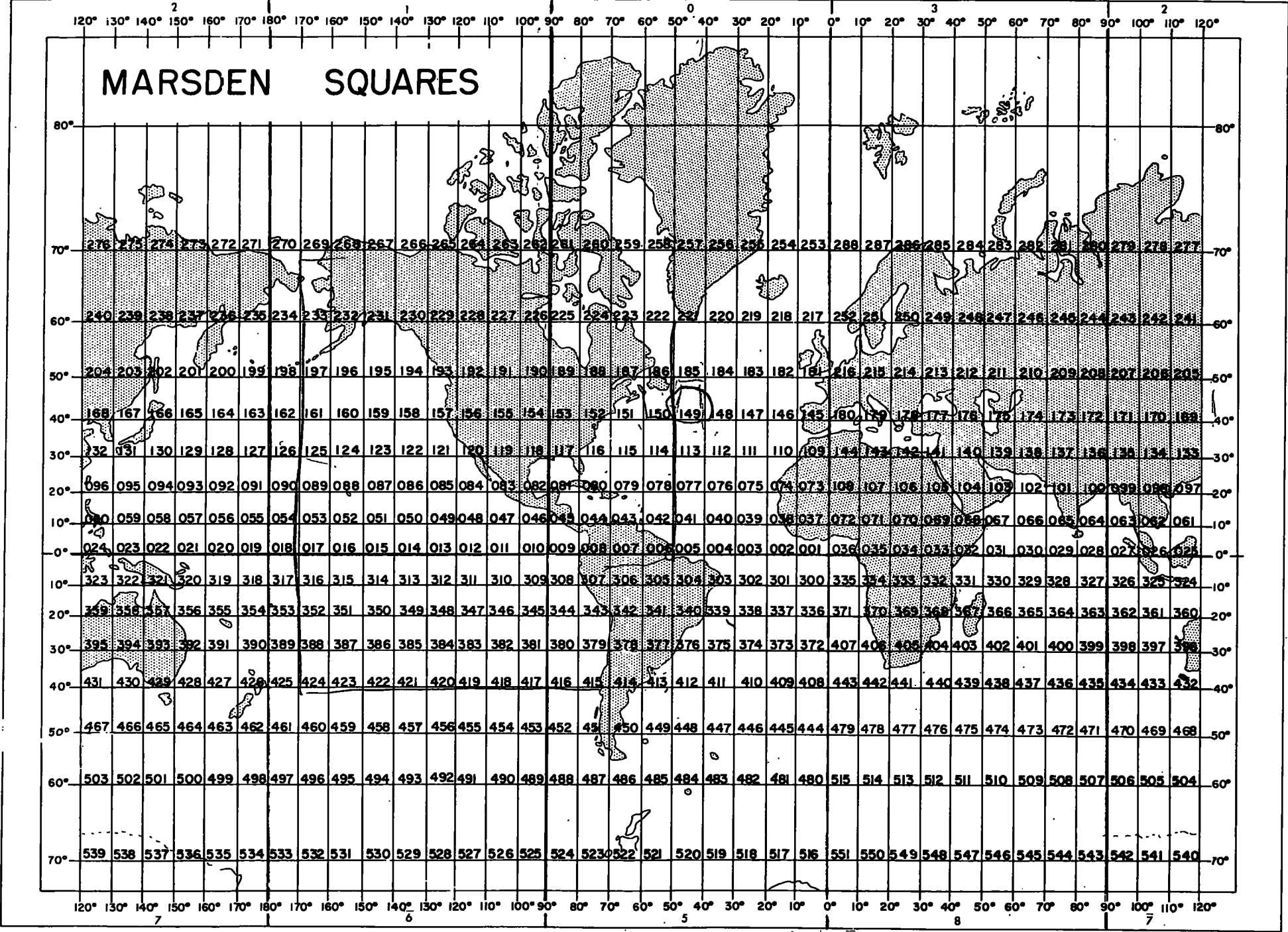
- x Ships Direction and Speed
- x Pressure Tendency and Amount of Change during the past 3 hours
- x Ice Accretion Type, Thickness, and Rate
- x Significant Cloud Data
- x Ice field presence
- *Temperature Dew point

ADDITIONAL REMARKS

CORRECTIONS

Any errors in this manual should be called to the attention of Director, National Weather Records Center, or Chief, Data Processing Division, Climatic Center, USAF. Please give specific instances of error, and correct information if available.

[illegible]



90									99
80									
70									
60									
50									
40									
30									
20									
10	11	12	13	14	15	16	17	18	19
00	01	02	03	04	05	06	07	08	09

1°

3	4
1	2

5°

SQUARES ARE ALWAYS ORIENTED
SO THAT THE LOWEST NUMBER IS
NEAREST THE INTERSECTION OF
THE GREENWICH MERIDIAN AND
THE EQUATOR

CARD CONTENT					
Column	Item or Element	Symbolic Letter	Card Code	Card Code Definition	Remarks
1, 8-80	Missing Data X Overpunch		Blank X/	Indicates an "11" overpunch	May only be punched in cols. 18, 20, 32, 35, 37, 43, 46, 64 and 74. (See cols. 39, 40-42, 51)
1	Temp. Indicator		1/3	Temps. in 0.1°C Temps. in whole °C.	The 0.1° Cols. 34, 37, 45, 48, 76 are punched "0" when reported to whole °C.
2-3	Year		62-	1962-	Last two digits of year.
4-5	Month		01-12	Jan.-Dec.	Date is punched in GMT
6-7	Day	YY	01-31	Day of month	
8	Octant	Q	1-3, 5-8	Code 1, Page 5	
9-11	Latitude	L L L a a a	000-900	00.0-90.0° Latitude	North or South indicated by Col. 8. East or West (the hundreds digit of Longitude is omitted) indicated by Col. 8.
12-14	Longitude	L L L o o o	000-900 901-800	00.0-90.0° Longitude 90.1-180.0° Longitude	
15-16	Hour (GMT)	GG	00-23	00-23 GMT nearest whole hour	3 or 6 hourly observations
17	Total Cloud	N	0-9	Code 2, Page 5	
18-19	Wind Direction	dd	00-36	Code 3, Page 5	"X" overpunch in Col. 18 indicates wind was measured.
20-21	Wind Speed	ff	00-99 X ₀ -X ₉	Calm-99 Knots 100 through 199 Knots.	X overpunch in Col. 20 equal to or greater than 100 Knots.
22-23	Visibility	VV	90-99	Code 4, Page 5 observed in nautical miles	Some cards from a foreign country source may be in the 00-89 code. See Code 3A Page 5 for conversion.
24-25	Present Weather	ww	00-99	Code 5, Pages 6 and 7	Highest applicable code is punched.
26	Past Weather	W	0-9	Code 6, Page 7	Past weather for 6 hours for 00, 06, 12, 18Z observations. Past weather for 3 hours for 03, 09, 15, 21Z observations.
27-31	Pressure Corrected to MSL	PPPPP	07000-10999	700.0-1099.9 Mbs.	When reported in whole Mbs. "0" is punched in Col. 31.
32-34	Air Temperature	TTT	000-999 X ₀₁ -X ₉₉	-0.0° through +99.9°C. -0.1° through -99.9°C	Generally punched to 0.1°C, and Col. 1 punched "1". The tenths col. punched "0" when reported in whole degrees Celsius.
35-37	Wet Bulb Temperature	TTT _{wet}		Same Card Code as Cols. 32-34.	Negative temperatures are indicated by an "X" overpunch in Col. 32 or 35. Ice on wet bulb is indicated by an "X" overpunch in Col. 37.
38-42	Clouds				Criteria for the Specifications are in the International Cloud Atlas.
38	Total Amount of Lower	N _h	0-9	Code 1, Page 5	Amount of the celestial dome covered by Type C _L (or Type C _M when C _L is not present.
39	Low Type	C _L	0-9	Code 7, Page 7 *	The most significant type of C _L cloud is reported.

CARD CONTENT					
Column	Item or Element	Symbolic Letter	Card Code	Card Code Definition	Remarks
40	Height of Lower	h	0-9 X	Code 8, Page 7 *	The height of the lowest cloud present or C _L (or C _M when there are not any C _L) (that is the smallest visible fragment.
41	Middle Type	C _M	0-9 X	Code 9, Page 7 *	The most significant type of C _M .
42	High Type	C _H	0-9 X	Code 10, Page 7 *	The most significant type of C _H .
43-45	Sea Temperature	TTT _{sea}		Same code as Cols. 32-34	"X" overpunch in Col. 43 indicate negative values. If all temperatures are reported to 0.1° C except Sea Temperature, this does not make code punch "1" in Col. 1 illegal.
46-48	Air-Sea Temperature Differences			Same code as Cols. 32-34	"X" overpunch in Col. 46 indicates the Sea Temperature is higher than the Air Temperature. These columns were not punched beginning Jan. 1965 (except when prepared for international exchange.
49-54	Wind Waves (Sea)				Waves resulting from local wind influence.
49-50	Direction	d _w d _w	00-36 49	Code 11, Page 8	Direction is decoded to 36 points when d _w d _w is reported with 50 added. Code 99 is decoded to 49. These values are adjusted in H _w H _w Cols. 53-54.
51	Period	P _w	0-9, X	Code 12, Page 8	Punched as coded. U. S. is using the X code.
52	Blank		Blank	Not Punched	
53-54	Height	H _w H _w	00-01-99	Less than 1/4 meter 1/2 through 49 1/2 meters.	Punched in 1/2 meter units. Decoded from WMO Code. (See Code 13, Page 8.) and remarks on original records. See remarks in cols. 49-50.
55-60	Swell Waves			Same Code as Cols. 49-54 respectively	Waves caused by other than local wind influence.
55-56	Direction	d _w d _w			
57	Period	P _w			
58	Blank				
59-60	Height	H _w H _w			
61-62	Country Number		00-99	Code 14, Page 8	See Appendix for in house (NWRC) uses for Cols. 61-73, 77-80. These Cols. are blank for international exchange.
63	Code Indicator		0	Indicates Codes used in card are WMO Codes effective in year punched in cols. 2-3.	
64-73	Blank			See Remarks	

* X punch of code was generally discontinued beginning November 1963 on cards from U. S. Sources.

CARD CONTENT					
Column	Item or Element	Symbolic Letter	Card Code	Card Code Definition	Remarks
74-76	Dew point Temperature	T _d ^T _d ^T _d ^T		Same Code as Cols. 32-34.	Negative dew point temperature is indicated by an X overpunch in Col. 74. (Note - Not punched in cards at NWRC beginning Jan. 1965.) Dew points are computed and punched for international exchange.
77-80	Blank				See remarks columns 61-62.

CODE TABLES

CODE TABLES

When coding a meteorological report, symbolic letters are replaced by figures, which specify the value or the state of the corresponding element. In some cases, the specification of the symbolic letter (or group of letters) is sufficient to permit a direct transcription into figures (e.g., GG or PPP). In other cases, these figures are obtained by means of a special code table (or code, in short) for each element.

The codes elaborated to this end, as far as they are in world-wide use, are called international meteorological code tables. These same codes are used inversely for decoding observations and thus making available the information contained in them.

Besides the specifications given by the code tables in world-wide use, other sets of code tables are established by the WMO for regional use. Further arbitrary codes have been made necessary by the use of data in card decks which were never encoded into WMO forms.

Only codes pertinent to this card deck are included in the present manual. They appear in the order in which the elements were introduced in the description of the card content. They are numbered consecutively, and if applicable, the corresponding WMO code numbers are shown.

Code 2

(1949 WMO Code 60)
(1960 WMO Code 2700)

N - The fraction of the celestial dome covered by cloud

N_h - The fraction of the celestial dome covered by the cloud(s) reported for C_h or, if no C_h-cloud present, for C_u

Code figure	0	1	2	3	4	5	6	7	8	9
0	0	1 okta or less, but not zero	2/10 or less, but not zero	4/10	5/10	6/10	7/10 - 8/10	9/10 or more, but not 10/10	10/10	
1		not zero	zero	2/10 - 3/10						
2		2 oktas								
3		3 oktas								
4		4 oktas								
5		5 oktas								
6		6 oktas								
7		7 oktas or more, but not 8 oktas								
8		8 oktas								
9		Sky obscured, or cloud amount cannot be estimated								

Code 3

(1949 WMO Code 23)
(1960 WMO Code 0877)

dd - True direction, in tens of degrees, from which wind is blowing (or will blow)

Code figure	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18
00	Calm																		
01	5° - 14°																		
02	15° - 24°																		
03	25° - 34°																		
04	35° - 44°																		
05	45° - 54°																		
06	55° - 64°																		
07	65° - 74°																		
08	75° - 84°																		
09	85° - 94°																		
10	95° - 104°																		
11	105° - 114°																		
12	115° - 124°																		
13	125° - 134°																		
14	135° - 144°																		
15	145° - 154°																		
16	155° - 164°																		
17	165° - 174°																		
18	175° - 184°																		

Code 1

(1949 WMO Code 70)
(1960 WMO Code 3300)

Q - Octant Of The Globe

North Latitude 00°00' - 90°00'N	South Latitude 00°01' - 90°00'S
Octant	Longitude Limits
0#	00°00'W - 89°59'W
1#	90°00'W - 179°59'W
2#	179°59'E - 90°00'E
3#	89°59'E - 00°01'E
4#	00°00'W - 89°59'W
5#	90°00'W - 179°59'W
6#	179°59'E - 90°00'E
7#	89°59'E - 00°01'E
8#	00°00'W - 89°59'W
9#	90°00'W - 179°59'W
10#	179°59'E - 90°00'E
11#	89°59'E - 00°01'E

- # When a ship is:
- exactly at 00°00' Longitude it will be considered to be in Octant 0 or 5 depending on the Latitude.
 - exactly at 180°00' Longitude it will be considered to be in Octant 1 or 6 depending on the Latitude.

Code 3A

Conversion Table of Visibility for Nautical Miles from the 00-89 code to 90-99 decade

1949 00-89 Code	1949 & 1955 Decade 90-99	1955 & 1960 - 00-89 Code	Code 90-99 Nautical Mile Values
X0-X2	90	00	< 50 yards or meters
X3-X9, 00	91	01	50 yards or meters
01	92	02-04	200 yards or meters
02-03	93	05-08	1/4 or 500 meters
04-08	94	09-17	1/2
09-17	95	18-36	1.0
18-45	96	37-58	2.0
46-80	97	59-68	5.0
81	98	69-82	10.0
82-89	99	83-89	≥25.0

When distances are between two of the distances assigned to the above codes the code figure for the smaller distance are reported and punched.

Code 4

(1955 WMO Code 84)
(1960 WMO Code 4377)

VV - Horizontal visibility at surface

Code figure	Km	Yards (Approx.)	Statute Miles (Approx.)	Nautical Miles (Approx.)
00	<0.1	<110	<1/16	<1/16
01	0.1	110	1/16	1/16
02	0.2	220	1/8	1/8
03	0.3	330	3/16	3/16
04	0.4	440	1/4	1/4
05	0.5	550	5/16	5/16
06	0.6	660	3/8	3/8
07	0.7	770	7/16	7/16
08	0.8	880	1/2	1/2
09	0.9	990	9/16	9/16
10	1	1,100	5/8	5/8
11	1.1	1,210	11/16	11/16
12	1.2	1,320	3/4	3/4
13	1.3	1,430	13/16	13/16
14	1.4	1,540	7/8	7/8
15	1.5	1,650	15/16	15/16
16	1.6	1,760	1	1
17	1.7	1,870	1 1/16	1 1/16
18	1.8	1,980	1 1/8	1 1/8
19	1.9	2,090	1 3/16	1 3/16
20	2	2,200	1 1/4	1 1/4
21	2.1	2,310	1 5/16	1 5/16
22	2.2	2,420	1 3/8	1 3/8
23	2.3	2,530	1 7/16	1 7/16
24	2.4	2,640	1 1/2	1 1/2
25	2.5	2,750	1 9/16	1 9/16
26	2.6	2,860	1 5/8	1 5/8
27	2.7	2,970	1 11/16	1 11/16
28	2.8	3,080	1 3/4	1 3/4
29	2.9	3,190	1 13/16	1 13/16
30	3	3,300	1 7/8	1 7/8
31	3.1	3,410	1 15/16	1 15/16
32	3.2	3,520	2	2
33	3.3	3,630	2 1/16	2 1/16
34	3.4	3,740	2 1/8	2 1/8
35	3.5	3,850	2 3/16	2 3/16
36	3.6	3,960	2 1/4	2 1/4
37	3.7	4,070	2 5/16	2 5/16
38	3.8	4,180	2 3/8	2 3/8
39	3.9	4,290	2 7/16	2 7/16
40	4	4,400	2 1/2	2 1/2
41	4.1	4,510	2 9/16	2 9/16
42	4.2	4,620	2 5/8	2 5/8
43	4.3	4,730	2 11/16	2 11/16
44	4.4	4,840	2 3/4	2 3/4
45	4.5	4,950	2 13/16	2 13/16

Code 4, continued

Code figure	Km	Yards (Approx.)	Statute Miles (Approx.)	Nautical Miles (Approx.)
46	4.6	5,060	2 7/8	2 7/8
47	4.7	5,170	2 15/16	2 15/16
48	4.8	5,280	3	3
49	4.9	5,390	3 1/16	3 1/16
50	5	5,500	3 1/8	3 1/8
51				
52				
53				
54				
55				
56	6	6,600	3 3/4	3 3/4
57	7	7,700	4 3/8	4 3/8
58	8	8,800	5	5
59	9	9,900	5 5/8	5 5/8
60	10	11,000	6 1/4	6 1/4
61	11	12,100	6 7/8	6 7/8
62	12	13,200	7 1/2	7 1/2
63	13	14,300	8 1/8	8 1/8
64	14	15,400	8 3/4	8 3/4
65	15	16,500	9 3/8	9 3/8
66	16	17,600	10	10
67	17	18,700	10 5/8	10 5/8
68	18	19,800	11 1/4	11 1/4
69	19	20,900	11 7/8	11 7/8
70	20	22,000	12 1/2	12 1/2
71	21	23,100	13 1/8	13 1/8
72	22	24,200	13 3/4	13 3/4
73	23	25,300	14 3/8	14 3/8
74	24	26,400	15	15
75	25	27,500	15 5/8	15 5/8
76	26	28,600	16 1/4	16 1/4
77	27	29,700	16 7/8	16 7/8
78	28	30,800	17 1/2	17 1/2
79	29	31,900	18 1/8	18 1/8
80	30	33,000	18 3/4	18 3/4
81	35		21 7/8	21 7/8
82	40		25	25
83	45		28 1/8	28 1/8
84	50		31 1/4	31 1/4
85	55		34 3/8	34 3/8
86	60		37 1/2	37 1/2
87	65		40 5/8	40 5/8
88	70		43 3/4	43 3/4
89	> 70		>43 3/4	> 35
90	<0.05	<55	<1/32	< 50 yards
91	0.05	55	1/32	50 yards
92	0.2	220	1/8	200 yards
93	0.5	550	5/16	1/4
94	1	1,100	5/8	1/2
95	2	2,200	1 1/4	1
96	4	4,400	2 1/2	2
97	10	11,000	6 1/4	5
98	20	22,000	12 1/2	10
99	≥ 50	≥ 55,000	≥ 31 1/4	≥ 25

Notes:

- The code is direct reading in units of 100 m (approx. 110 yards or 1/16 statute mile) from 0 to 50.
- The code figures 51 to 55 are not used.
- For code figures 56 to 80, 50 is subtracted and the remaining figure is direct reading in units of km (approx. 1,100 yards or 5/8 statute mile).
- For code figures 81 to 89, the code reads in increments of 5 km (3 1/8 statute miles) from the values given for code figure 80.
- The code table is to be considered as a coding device in which certain code figures are assigned values. These are discrete values (not ranges). Any observation or forecast of values to be coded in the code table is to be made without regard to the code table. The coding is then accomplished according to the following rule: If the observed or forecast visibility is between two of the reportable distances as given in the table, the code figure for the lower reportable distance is reported.

Code 5

(1949 WMO Code 92)
(1960 WMO Code 4677)

ww - Present weather

ww 00 - 49 No precipitation at the station at the time of observation

ww 00 - 19 No precipitation, fog, ice fog (except 11 and 12), duststorm, sandstorm, drifting or blowing snow at the station (land station or ship) at the time of observation or, except for 09 and 17, during the preceding hour.

Code figure

No Meteor except photostorms	00	Cloud development not observed or not observable	
	01	Clouds generally dissolving or becoming less developed	characteristic change of the state of sky during the past hour
	02	State of sky on the whole unchanged	
	03	Clouds generally forming or developing	
Haze, dust, sand or smoke	04	Visibility reduced by smoke, e.g. wild or forest fires, industrial smoke or volcanic ashes	
	05	Haze	
	06	Widespread dust in suspension in the air, not raised by wind at or near the station at the time of observation	
	07	Dust or sand raised by wind at or near the station at the time of observation, but no well developed dust whirl(s) or sand whirl(s), and no duststorm or sandstorm seen	
	08	Well developed dust whirl(s) or sand whirl(s) seen at or near the station during the preceding hour or at the time of observation, but no duststorm or sandstorm	
	09	Duststorm or sandstorm within sight at the time of observation, or at the station during the preceding hour	
	10	Mist	
	11	Patches of shallow fog or ice fog at the station, whether on land or sea, not deeper than about 2 metres continuous	
	12	Lightning visible, no thunder heard	
	13	Precipitation within sight, not reaching the ground or the surface of the sea	
	14	Precipitation within sight, reaching the ground or the surface of the sea, but distant (i.e. estimated to be more than 5 km) from the station	
	15	Precipitation within sight, reaching the ground or the surface of the sea, near to, but not at the station	
	16	Thunderstorm, but no precipitation at the time of observation	
	17	Squalls	at or within sight of the station during the preceding hour or at the time of observation
	18	Funnel cloud(s) (tornado cloud or waterspout)	of observation

Code 5, continued

ww 20 - 29 Precipitation, fog, ice fog or thunderstorm at the station during the preceding hour but not at the time of observation

Code figure

ww	20	Drizzle (not freezing) or snow grains	
	21	Rain (not freezing)	
	22	Snow	not falling as shower(s)
	23	Rain and snow or ice pellets, type (a)	
	24	Freezing drizzle or freezing rain	
	25	Shower(s) of rain	
	26	Shower(s) of snow, or of rain and snow	
	27	Shower(s) of hail (ice pellets, type (b), snow pellets), or of rain and hail (ice pellets, type (b), snow pellets)	
	28	Fog or ice fog	
	29	Thunderstorm (with or without precipitation)	
ww 30 - 39		Duststorm, sandstorm, drifting or blowing snow	
ww	30		(has decreased during the preceding hour)
	31	Slight or moderate duststorm or sandstorm	no appreciable change during the preceding hour
	32		has begun or has increased during the preceding hour
	33		(has decreased during the preceding hour)
	34	Severe duststorm or sandstorm	no appreciable change during the preceding hour
	35		has begun or has increased during the preceding hour
	36	Slight or moderate drifting snow	generally low (below eye level)
	37	Heavy drifting snow	
	38	Slight or moderate blowing snow	generally high (above eye level)
	39	Heavy blowing snow	
ww 40 - 49		Fog or ice fog at the time of observation	
ww	40	Fog or ice fog at a distance at the time of observation, but not at the station during the preceding hour, the fog or ice fog extending to a level above that of the observer	

Code 5, continued

Code figure

	41	Fog or ice fog in patches	
	42	Fog or ice fog, sky visible	has become thinner during the preceding hour
	43	Fog or ice fog, sky invisible	
	44	Fog or ice fog, sky visible	no appreciable change during the preceding hour
	45	Fog or ice fog, sky invisible	
	46	Fog or ice fog, sky visible	has begun or has become thicker during the preceding hour
	47	Fog or ice fog, sky invisible	
	48	Fog, depositing rime, sky visible	
	49	Fog, depositing rime, sky invisible	
ww 50 - 59		Precipitation at the station at the time of observation	
ww 50 - 59		Drizzle	
ww	50	Drizzle, not freezing, intermittent	slight at time of observation
	51	Drizzle, not freezing, continuous	
	52	Drizzle, not freezing, intermittent	moderate at time of observation
	53	Drizzle, not freezing, continuous	
	54	Drizzle, not freezing, intermittent	heavy (dense) at time of observation
	55	Drizzle, not freezing, continuous	
	56	Drizzle, freezing, slight	
	57	Drizzle, freezing, moderate or heavy (dense)	
	58	Drizzle and rain, slight	
	59	Drizzle and rain, moderate or heavy	
ww 60 - 69		Rain	
ww	60	Rain, not freezing, intermittent	slight at time of observation
	61	Rain, not freezing, continuous	
	62	Rain, not freezing, intermittent	moderate at time of observation
	63	Rain, not freezing, continuous	
	64	Rain, not freezing, intermittent	heavy at time of observation
	65	Rain, not freezing, continuous	
	66	Rain, freezing, slight	
	67	Rain, freezing, moderate or heavy	
	68	Rain or drizzle and snow, slight	
	69	Rain or drizzle and snow, moderate or heavy	

Code 5, continued

ww 70 - 79 Solid precipitation not in showers

ww	70	Intermittent fall of snow flakes	slight at time of observation
	71	Continuous fall of snow flakes	
	72	Intermittent fall of snow flakes	moderate at time of observation
	73	Continuous fall of snow flakes	
	74	Intermittent fall of snow flakes	heavy at time of observation
	75	Continuous fall of snow flakes	
	76	Ice prisms (with or without fog)	
	77	Snow grains (with or without fog)	
	78	Isolated starlike snow crystals (with or without fog)	
	79	Ice pellets, type (a)	
ww 80 - 89		Showery precipitation, or precipitation with current or recent thunderstorm	
ww	80	Rain shower(s), slight	
	81	Rain shower(s), moderate or heavy	
	82	Rain shower(s), violent	
	83	Shower(s) of rain and snow mixed, slight	
	84	Shower(s) of rain and snow mixed, moderate or heavy	
	85	Snow shower(s), slight	
	86	Snow shower(s), moderate or heavy	
	87	Shower(s) of snow pellets or ice pellets, type (b), with or without rain or rain and snow mixed	- slight
	88		- moderate or heavy
	89	Shower(s) of hail, with or without rain or rain and snow mixed, not associated with thunder	- slight
	90		- moderate or heavy
	91	Slight rain at time of observation	
	92	Moderate or heavy rain at time of observation	thunderstorm during the preceding hour but not at time of observation
	93	Slight snow, or rain and snow mixed or hail (ice pellets, type (b), snow pellets), at time of observation	
	94	Moderate or heavy snow, or rain and snow mixed or hail (ice pellets, type (b), snow pellets) at time of observation	
	95	Thunderstorm, slight or moderate, without hail (ice pellets, type (b), snow pellets); but with rain and/or snow at time of observation	
	96	Thunderstorm, slight or moderate, with hail (ice pellets, type (b), snow pellets) at time of observation	thunderstorm at time of observation

Code 5, continued

Code figure

- 97 Thunderstorm, heavy, without hail (ice pellets, type(b), snow pellets), but with rain and/or snow at time of observation
- 98 Thunderstorm combined with duststorm or sandstorm at time of observation
- 99 Thunderstorm, heavy, with hail (ice pellets, type(b), snow pellets) at time of observation

Code 6 (1949 WMO Code 90) (1960 WMO Code 4500)

W - Past weather

Code figure

- 0 Cloud covering 1/2 or less of the sky throughout the appropriate period
- 1 Cloud covering more than 1/2 of the sky during part of the appropriate period and covering 1/2 or less during part of the period
- 2 Cloud covering more than 1/2 of the sky throughout the appropriate period
- 3 Sandstorm, duststorm or blowing snow
- 4 Fog or ice fog or thick haze
- 5 Drizzle
- 6 Rain
- 7 Snow, or rain and snow mixed
- 8 Shower(s)
- 9 Thunderstorm(s) with or without precipitation

Notes:

- (1) In the case of a sandstorm, with a temperature below 0°C, the word SANDSTORM is added at the end of the report, but is omitted in punching.
- (2) In the case of a shower or a thunderstorm, accompanied by hail, the words PAST HAIL are added at the end of the report, but are omitted in punching.
- (3) In the case of a snow shower or a shower of rain and snow mixed, with a temperature above 0°C, the word SNOW or SLEET is added at the end of the report, but is omitted in punching.

Code 7

(1949 WMO Code 11)
(1960 WMO Code 0513)

C_L - Clouds of the genera Stratocumulus, Stratus, Cumulus and Cumulonimbus

Code figure Non technical specifications

- 0 No Stratocumulus, Stratus, Cumulus or Cumulonimbus
- 1 Cumulus with little vertical extent and seemingly flattened, or ragged Cumulus other than of bad weather, or both
- 2 Cumulus of moderate or strong vertical extent, generally with protuberances in the form of domes or towers, either accompanied or not by other Cumulus or by Stratocumulus, all having their bases at the same level
- 3 Cumulonimbus the summits of which, at least partially, lack sharp outlines, but are neither clearly fibrous (cirriform) nor in the form of an anvil; Cumulus, Stratocumulus or Stratus may also be present
- 4 Stratocumulus formed by the spreading out of Cumulus; Cumulus may also be present
- 5 Stratocumulus not resulting from the spreading out of Cumulus
- 6 Stratus in a more or less continuous sheet or layer, or in ragged shreds, or both, but no Stratus fractus of bad weather
- 7 Stratus fractus of bad weather (generally existing during precipitation and a short time before and after), or Cumulus fractus of bad weather, or both (pannus), usually below Altostratus or Nimbostratus
- 8 Cumulus and Stratocumulus other than that formed from the spreading out of Cumulus; the base of the Cumulus is at a different level from that of the Stratocumulus
- 9 Cumulonimbus, the upper part of which is clearly fibrous (cirriform), often in the form of an anvil; either accompanied or not by Cumulonimbus without anvil or fibrous upper part, by Cumulus, Stratocumulus, Stratus or pannus
- X Stratocumulus, Stratus, Cumulus and Cumulonimbus invisible owing to darkness, fog, blowing dust or sand; or other similar phenomena

Code 8 (1949 WMO Code 43) (1960 WMO Code 1600)

h = Height above Ground of the Base of the Cloud (surface)

Code Figure	Height in Feet	Height in Meters
0	0- 149	0- 49
1	150- 299	50- 99
2	300- 599	100- 199
3	600- 999	200- 299
4	1,000-1,999	300- 599
5	2,000-3,499	600- 999
6	3,500-4,999	1,000-1,499
7	5,000-6,499	1,500-1,999
8	6,500-7,999	2,000-2,499
9	8,000 or higher, or no clouds	2,500 or higher, or no clouds

Note: The heights (in feet) given in this code table approximately correspond to those given in 1949 and 1955 WMO Code 43 and 1960 WMO Code 1600 and those given in the ninth decade (i.e., code figures 90-99) of 1949 and 1955 WMO Code 40 or 1960 WMO Code 1577.

Code 9

(1949 WMO Code 12)
(1960 WMO Code 0515)

C_H - Clouds of the genera Alto cumulus, Altostratus and Nimbostratus

Code figure

- 0 No Alto cumulus, Altostratus or Nimbostratus
- 1 Altostratus, the greater part of which is semi-transparent; through this part the sun or moon may be weakly visible, as through ground glass
- 2 Altostratus, the greater part of which is sufficiently dense to hide the sun or moon, or Nimbostratus
- 3 Alto cumulus, the greater part of which is semi-transparent; the various elements of the cloud change only slowly and are all at a single level
- 4 Patches (often in the form of almonds or fishes) of Alto cumulus, the greater part of which is semi-transparent; the clouds occur at one or more levels and the elements are continually changing in appearance
- 5 Semi-transparent Alto cumulus in bands, or Alto cumulus in one or more fairly continuous layers (semi-transparent or opaque), progressively invading the sky; these Alto cumulus clouds generally thicken as a whole
- 6 Alto cumulus resulting from the spreading out of Cumulus (or Cumulonimbus)
- 7 Alto cumulus in two or more layers, usually opaque in places, and not progressively invading the sky; or opaque layer of Alto cumulus, not progressively invading the sky; or Alto cumulus together with Altostratus or Nimbostratus
- 8 Alto cumulus with sproutings in the form of small towers or battlements, or Alto cumulus having the appearance of cumuliform tufts
- 9 Alto cumulus of a chaotic sky, generally at several levels
- X Alto cumulus, Altostratus and Nimbostratus invisible owing to darkness, fog, blowing dust or sand or other similar phenomena, or more often because of the presence of a continuous layer of lower clouds

Code 10

(1949 WMO Code 13)
(1960 WMO Code 0509)

C_H - Clouds of the genera Cirrus, Cirrocumulus and Cirrostratus

Code figure Non technical specifications

- 0 No Cirrus, Cirrocumulus or Cirrostratus
- 1 Cirrus in the form of filaments, strands or hooks, not progressively invading the sky
- 2 Dense Cirrus, in patches or entangled sheaves, which usually do not increase and sometimes seem to be the remains of the upper part of a Cumulonimbus; or Cirrus with sproutings in the form of small turrets or battlements, or Cirrus having the appearance of cumuliform tufts
- 3 Dense Cirrus, often in the form of an anvil, being the remains of the upper parts of Cumulonimbus
- 4 Cirrus in the form of hooks or of filaments, or both, progressively invading the sky; they generally become denser as a whole
- 5 Cirrus (often in bands converging towards one point or two opposite points of the horizon) and Cirrostratus, or Cirrostratus alone; in either case, they are progressively invading the sky, and generally growing denser as a whole, but the continuous veil does not reach 45 degrees above the horizon
- 6 Cirrus (often in bands converging towards one point or two opposite points of the horizon) and Cirrostratus, or Cirrostratus alone; in either case, they are progressively invading the sky, and generally growing denser as a whole; the continuous veil extends more than 45 degrees above the horizon, without the sky being totally covered
- 7 Veil of Cirrostratus covering the celestial dome
- 8 Cirrostratus not progressively invading the sky and not completely covering the celestial dome
- 9 Cirrocumulus alone, or Cirrocumulus accompanied by Cirrus or Cirrostratus, or both, but Cirrocumulus is predominant
- X Cirrus, Cirrocumulus and Cirrostratus invisible owing to darkness, fog, blowing dust or sand or other similar phenomena, or more often because of the presence of a continuous layer of lower clouds

Code 11 (1949 WMO Code 238) (1960 WMO Code 0885)

d_{44} - Direction from which waves come, in tens of degrees

Code Figure	Code Figure
00 Calm (no waves)	19 185° - 194°
01 5° - 14°	20 195° - 204°
02 15° - 24°	21 205° - 214°
03 25° - 34°	22 215° - 224°
04 35° - 44°	23 225° - 234°
05 45° - 54°	24 235° - 244°
06 55° - 64°	25 245° - 254°
07 65° - 74°	26 255° - 264°
08 75° - 84°	27 265° - 274°
09 85° - 94°	28 275° - 284°
10 95° - 104°	29 285° - 294°
11 105° - 114°	30 295° - 304°
12 115° - 124°	31 305° - 314°
13 125° - 134°	32 315° - 324°
14 135° - 144°	33 325° - 334°
15 145° - 154°	34 335° - 344°
16 155° - 164°	35 345° - 354°
17 165° - 174°	36 355° - 364°
18 175° - 184°	49 Waves confused, direction indeterminate (waves equal to or less than $\frac{1}{4}$ metres)
	99 Waves confused, direction indeterminate (waves greater than $\frac{1}{4}$ metres)

Code 13 (1949 WMO Code 42) (1960 WMO Code 1555)

H_m - Mean Maximum Height of the Waves

Code Figure *) / **)	If 50 is added to d_{44}
0 Less than $\frac{1}{4}$ m (1 ft)	0 5 = (16 ft)
1 $\frac{1}{2}$ m (1 $\frac{1}{2}$ ft)	1 5 $\frac{1}{2}$ = (17 $\frac{1}{2}$ ft)
2 1 m (3 ft)	2 6 = (19 ft)
3 1 $\frac{1}{2}$ m (5 ft)	3 6 $\frac{1}{2}$ = (21 ft)
4 2 m (6 $\frac{1}{2}$ ft)	4 7 = (22 $\frac{1}{2}$ ft)
5 2 $\frac{1}{2}$ m (8 ft)	5 7 $\frac{1}{2}$ = (24 ft)
6 3 m (9 $\frac{1}{2}$ ft)	6 8 = (25 $\frac{1}{2}$ ft)
7 3 $\frac{1}{2}$ m (11 ft)	7 8 $\frac{1}{2}$ = (27 ft)
8 4 m (13 ft)	8 9 = (29 ft)
9 4 $\frac{1}{2}$ m (14 ft)	9 9 $\frac{1}{2}$ = (30 $\frac{1}{2}$ ft)

*) Each code figure provides for reporting a range of heights. For example: 1 = $\frac{1}{2}$ m (1 ft) to $\frac{3}{4}$ m (2 $\frac{1}{2}$ ft); 5 = 2 $\frac{1}{2}$ m (7 ft) to 2 $\frac{3}{4}$ m (9 ft); 9 = 4 $\frac{1}{4}$ m (13 $\frac{1}{2}$ ft) to 4 $\frac{3}{4}$ m (15 ft), etc.

**) If a wave height comes exactly midway between the heights corresponding to two code figures, the lower code figure should be reported.

Code 12 (1949 WMO Code 69) (1960 WMO Code 3155)

P_w - Period of Waves

Code Figure	Code Figure
2 5 seconds or less	8 16 or 17 seconds
3 6 or 7 seconds	9 18 or 19 seconds
4 8 or 9 seconds	0 20 or 21 seconds
5 10 or 11 seconds	1 Over 21 seconds
6 12 or 13 seconds	/ or X Calm, or period not determined
7 14 or 15 seconds	

Notes:

- (1) The period of the waves is the time between the passage of two successive wave crests past a fixed point (it is equal to the wave length divided by the wave speed).
- (2) The average value of the wave period is reported, as obtained from the larger well-formed waves of the wave system being observed.

Code 14

LIST OF NUMBERS INDICATING THE COUNTRY OF ORIGIN OF THE INTERNATIONAL MARITIME METEOROLOGICAL PUNCH CARD

00 Netherlands	17 Japan
01 Norway	18 Pakistan
02 USA	19 Argentina
03 United Kingdom	20 Sweden
04 France	21 Federal Republic of Germany
05 Denmark	22 Iceland
06 Italy	23 Israel
07 India	24 Malaysia
08 Hong Kong	25 USSR
09 New Zealand	26 Finland
10 Ireland	27 Korea
11 Philippines	28 New Caledonia
12 United Arab Republic	29 Portugal
13 Canada	30 Spain
14 Belgium	31 Thailand
15 South Africa	32 Yugoslavia
16 Australia	33
	34 Brazil